

Relationship Abuse and Victims' Posttraumatic Stress Disorder Symptoms: Associations with Child Behavior Problems

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Abstract This study examined associations among male-to-female physical and psychological relationship aggression, female partners' PTSD symptoms, and behavior problems among the children ($n=62$) of men enrolled in a treatment program for relationship abuse perpetration. Psychological aggression was a stronger predictor of child behavior problems than physical assault. Restrictive engulfment and hostile withdrawal behaviors evidenced the strongest bivariate associations with child behavior problems, and were the strongest predictors of this outcome when considering four distinct forms of psychological aggression together. Victim PTSD symptoms largely mediated the effects of psychological aggression on child behavior. Findings suggest that male-to-female psychological aggression and victim PTSD symptoms play an important role in understanding behavior problems among children living with male relationship abuse perpetrators.

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An estimated ten million children are exposed to interparental physical assault each year in the United States (Straus 1992). A number of studies have demonstrated an association between interparental physical assault and child behavior problems (Fantuzzo et al. 1991; Jaffe et al. 1986; Jouriles et al. 1989; Jouriles et al. 1996; Grych et al. 2000; Kernic et al. 2003; Levendosky et al. 2002; McFarlane et al. 2003; Ware et al. 2001; Wolfe et al. 1985; see also Kitzmann et al. 2003, for a review). These studies indicate that both the frequency and severity of interparental violence are positively correlated with child behavior problems. The clinical significance of these findings is underscored by research demonstrating that behavior problems in childhood predict violent behavior, including the perpetration of relationship violence, in adulthood (Magdol et al. 1998; Mason et al. 2004). Thus, exposure to interparental abuse appears to place children at risk for both short-term and long-term difficulties.

Little research has examined the impact of interparental psychological aggression on child outcomes. Research in this area appears warranted, considering that psychological aggression is associated with a range of psychological and physical health problems among adult women (Marshall 1996; Sackett and Saunders 1999; Vitanza et al. 1995). Some investigations among battered women in shelters have shown that psychological aggression is a more robust predictor of posttraumatic stress disorder (PTSD) symptoms than is physical assault (Arias and Pape 1999; Dutton et al. 1999; Street and Arias 2001). A recent study of the relationship partners of men in treatment for partner violence perpetration similarly found psychological aggression to exert a stronger impact on PTSD symptoms than physical abuse (Taft et al. 2005). Behaviors intended to

isolate and restrict the partner, denigrating behaviors, and dominating and intimidating behaviors evidenced the largest associations with PTSD symptoms.

In their examination of women and children residing in domestic violence shelters, Levendosky and Graham-Bermann (1998) obtained similar findings suggesting the salience of psychological aggression with respect to child behavior problems. Interparental psychological aggression, in contrast to physical assault, had a stronger positive association with both internalizing and externalizing behavior problems. Maternal stress appeared to account for the effects of interparental psychological aggression and physical assault on child behavior problems, consistent with other studies that have focused exclusively on interparental physical assault (e.g., Wolfe et al. 1985). This initial evidence suggests that, as with interparental physical assault, interparental psychological aggression is associated with child behavior problems, and maternal stress-related variables may mediate this association.

Studies examining the role of maternal problems with respect to the associations between interparental abuse variables and child behavior problems have focused primarily on depression (English et al. 2003; Levendosky et al. 2003). We are not aware of any study that has examined the isolated effects of women's abuse-related PTSD symptomatology on child behavior problems. This lack of research is surprising given the very high PTSD prevalence rates among samples of battered women (Golding 1999), and large associations between relationship abuse and PTSD symptoms (Astin et al. 1995; Housekamp and Foy 1991; Taft et al. 2005). One recent study of mothers and children residing in shelters found that poor maternal psychological functioning, as determined by combined measures of depression, anxiety, psychoticism, and PTSD symptomatology, was positively associated with behavior problems in children (Levendosky and Graham-Bermann 2001). Given these findings, previous research demonstrating maternal psychological functioning to mediate the relationship between interparental violence and problematic child behavior (e.g., Street et al. 2003), and evidence from military veterans indicating an association between parental PTSD and child behavior problems (Caselli and Motta 1995; Jordan et al. 1992), we expected women's PTSD symptoms to mediate associations between interparental abuse and child behavior problems.

Most prior studies in this area have been conducted among those in shelters for battered women. Women in shelters are likely to have experienced more severe abuse than other battered women (Saunders 1994; Schlee et al. 1998), and the children who live with their mothers in shelters are likely to have been abused themselves (see Campbell and Lewandowski 1997). Furthermore, battered women with

PTSD-related avoidance symptoms may not be adequately represented among help-seeking samples. Children in shelters may also exhibit more behavioral problems due to separation from their home environment and disruptions in living arrangements. Several researchers have shown that children's behavior problems subside after returning home from a domestic violence shelter (Wolfe et al. 1986).

The present study examined associations between male-to-female interparental relationship abuse and child behavior problems among a non-shelter sample of female partners of men in treatment for partner violence perpetration. We hypothesized that: (a) male-to-female interparental physical assault and psychological aggression would be positively associated with child behavior problems; (b) male-to-female interparental psychological aggression would be a stronger predictor of child behavior problems relative to male-to-female interparental physical assault; and (c) participant PTSD symptoms would mediate the associations between male-to-female interparental abuse and child behavior problems. In addition, analyses were conducted to explore whether specific forms of male-to-female interparental psychological aggression exhibited stronger associations with child behavior problems when compared to other forms of psychological aggression.

Materials and Methods

Participants

Participants were women identified as current or former partners of male clients enrolled in a community-based treatment program for perpetrators of intimate partner abuse, who represented a subsample of those participating in a larger investigation focusing on the impact of different forms of abuse (Taft et al. 2005). For the current study, participants were eligible if the male client reported living with a child between the ages of 4 and 17 at some point during the previous 6 months. Male clients provided consent to contact their relationship partner by telephone during their initial intake session. Confidential 1-h telephone interviews were conducted with the female participants prior to the initiation of the male client's treatment. Female participants provided verbal assent for the use of the information provided during the initial telephone interview. Telephone interviews, rather than in-person interviews, were conducted with female participants to ensure safety. These interviews provided outreach information on safety planning and counseling, shelter, and legal advocacy services provided to victims by the agency research site, and assessed the male client's abusive behavior, the female participant's functioning, and child behavior problems.

These data were gathered during a routine clinic intake, for the purposes of research and program evaluation. All of the male clients had a documented history of physically assaultive behavior towards a female partner, as evidenced by self-report, partner report, and/or police report.

During the time frame of this study, 68 partner-abusive male clients indicated that they had co-resided in recent months with one or more children in the target age range. Among the 68 potentially available female partners, 54 (79%) were successfully contacted for the assessment and 37 (69% of those contacted) completed child assessments. Reasons for failure to complete the assessment included inadequate contact information, partner refusal to complete some or all of the assessment, inability to complete the interview despite repeated phone contacts with the partner, and interviewer error (e.g., failure to recognize child eligibility as a function of changes in residential arrangements with the abusive client). Eligible women who were not interviewed about their children and those who completed child assessments did not differ significantly on demographic variables including age, education, or income.

Of the female participants who completed child assessments, 60% were Caucasian, 34% were African-American, 3% were Hispanic, and 3% were Native American. Women ranged in age from 17 to 50 years ($M=35.0$ years; $SD=7.4$ years), and had an average of 13.8 years of formal education ($SD=2.5$ years; range= 9–20 years). With regard to yearly income, 18% of women reported no earnings, 16% earned \$1,000–10,000, 13% earned \$10,001–20,000, 13% earned \$20,001–30,000, 19% earned \$30,001–40,000, 6% earned \$40,001–50,000, 9% earned \$50,001–60,000, and 6% earned \$60,000–80,000. With respect to relationship status, 29% were married and living with the male client, 26% were separated and not dating the male client, 20% were unmarried and residing with the male client, 11% were divorced and not dating the male client, 6% used to live with the male client and were currently dating him, 5% were separated and dating the male client, 3% used to date the male client but were not dating him currently, and 3% said their involvement with the male client fit none of the above categories.

Data were available for a total of 62 children, with an average of 1.8 children per household. All children had been residing with the male client during the 6 months prior to assessment, and they ranged in age from 4 to 17 years ($M=9.54$; $SD=3.56$). One-half of these children ($n=31$; 50%) were female. Fifty-eight percent were the biological or adopted children of the male client and female participant; 24% were the biological or adopted children from a previous relationship of the male client; and 18% were the biological or adopted children from a previous relationship of the female participant.

Measures

Intimate Partner Physical Assault was assessed with the 9-item physical assault subscale of the Conflict Tactics Scale (CTS; Straus 1979). Female participants reported on the behavior of the male clients, rating the frequency of each assaultive behavior in the last 6 months on a scale ranging from 0 (*never*) to 6 (*more than 20 times*). Physical assault subscale scores were computed by summing the number of positively endorsed items, with total scores ranging from 0 to 9, and higher scores reflecting a higher degree of physical assault. “Variety scores” derived from this computation method indicate the number of different assaultive behaviors experienced by the participant and have several desirable psychometric properties, such as higher reliability and greater accuracy than other CTS scoring methods, and equal weighting to all acts of violence, regardless of their frequency (Moffitt et al. 1997). The CTS is the most widely used measure of relationship abuse, and its internal consistency reliability and construct validity have been consistently documented (Straus 1979, 1990). Further, Lawrence et al. (1995) report high associations between telephone and in-person administrations of the CTS. Physical assault variety scores were log-transformed to reduce skew and kurtosis.

Intimate Partner Psychological Aggression was assessed with the 28-item Multidimensional Measure of Emotional Abuse (MMEA; Murphy and Hoover 1999; Murphy et al. 1999). The MMEA is composed of four seven-item subscales: Restrictive Engulfment (e.g., *Tried to stop you from seeing certain friends or family members*), Hostile Withdrawal (e.g., *Acted cold or distant when angry*), Denigration (e.g., *Called you a loser, failure, or similar term*), and Dominance/Intimidation (e.g., *Threw, smashed, hit, or kicked something in front of you*). The four-factor conceptualization of psychological aggression as assessed by the MMEA has been supported through exploratory and confirmatory factor analysis (Murphy and Hoover 1999; Murphy et al. 1999), and this measure has been shown to relate to clinical outcome and correlates of abuse victimization in prior studies of partner violence treatment samples, demonstrating its construct validity (Taft et al. 2003; Taft et al. 2005). As with the CTS, female participants reported on the frequency of abusive behaviors by the male clients in the prior 6 months using a 0 (*never*) to 6 (*more than 20 times*) rating scale. Variety scores were computed for the four MMEA subscales and MMEA total score in the same manner as for the CTS, and these scores were log-transformed to reduce skew and kurtosis.

PTSD Symptomatology was assessed using the nine symptoms from the Diagnostic Interview Schedule (DIS; Robins et al. 1982). The DIS is based on DSM-III (American Psychiatric Association 1980) criteria, and was

originally developed to assess psychiatric disorders in large epidemiological studies. The DIS was administered to participants following the instructions: “*How often did you experience any of the following problems as a result of (partner’s name)’s abuse in the past six months?*” Response options for the DIS were *never* (coded 0), *occasionally* (coded 1), and *frequently* (coded 2), with total frequency scores computed as the sum of these items. Total PTSD scores were then log transformed to reduce skewness and kurtosis. The PTSD module of the DIS has been found to demonstrate adequate reliability, with a 1-week test-retest coefficient of 0.95, and good convergent validity with other diagnostic interviews for PTSD (Breslau and Davis 1987; Watson et al. 1991). Studies of battered women have demonstrated high “probable PTSD” rates using the DIS, and high associations with measures of intimate partner abuse (Saunders 1994; Taft et al. 2005). The internal consistency reliability coefficient for this measure in the current study was 0.87.

Child Behavior Problems were assessed using the Pediatric Symptom Checklist (PSC; Jellinek and Murphy 1988). The PSC is a 35-item measure originally designed to identify emotional and behavioral problems in children in pediatric primary care settings; the measure has also been widely used in non-pediatric settings and is appropriate for children aged 4 to 17 (Kelley and Fals-Stewart 2002; Murphy et al. 1989). The PSC consists of a list of behavioral problems evidenced by children. Respondents rate the frequency of each behavior on a three-point scale with the response options *never* (coded 0), *sometimes* (coded 1), and *often* (coded 2). Sample items include: *Fidgety, unable to sit still*; *School grades dropping*; *Takes things that do not belong to him or her*; and *Does not listen to rules*. A total score was computed by summing the items, with higher scores indicating more behavior problems. These scores were log transformed to reduce skewness and kurtosis. Simonian and Tarnowski (2001) reported a high correlation between scores on the PSC and the Child Behavior Checklist ($r=0.78$ for externalizing symptoms and $r=0.76$ for internalizing symptoms; Achenbach 1991), a widely used measure of child behavior problems. The PSC has good test-retest reliability, with associations ranging from 0.84 to 0.91 over time (Jellinek and Murphy 1988), and numerous studies have demonstrated the validity of the measure (see Jellinek et al. 1995, for a review). The internal consistency reliability estimate for the PSC in the current study was 0.92.

Analyses

First, descriptive statistics for all of the study variables were computed. Next, bivariate correlations among study variables were calculated to test the hypothesized associations

among the measures of relationship abuse, PTSD symptoms, and child behavior problems. Effect sizes were interpreted in terms of suggestions made by Cohen (1988), and differences in the magnitude of associations were examined using Steiger’s (1980) formula. In addition, multiple regression was used to determine (a) the relative associations between physical and psychological aggression with child behavior problems; and (b) the relative associations of the different MMEA subscales with child behavior problems.

The approach to testing mediators outlined by Baron and Kenny (1986) was employed to examine the hypothesis that PTSD symptoms would account for the associations between the abuse measures and child behavior problems. The mediational hypothesis is supported if: (a) the abuse measure is associated with PTSD symptoms and child behavior problems; (b) PTSD symptoms are associated with child behavior problems; and (c) when the abuse measure and PTSD symptoms are entered together into a multiple regression equation predicting child behavior problems, the effects of the abuse measure are reduced. A direct test of the significance of the mediational pathway, described by Kenny et al. (1998), was also conducted.

Because data were collected on more than one child from some families, analyses were based on the sandwich or Huber/White variance estimator using STATA 7.0 (Statacorp 2001), which adjusts estimated standard errors to account for the nonindependence of data from children in the same family.

Results

Descriptive statistics for all study variables are presented in Table 1. Female participants reported experiencing an average of 2.05 ($SD=2.37$) forms of physical assault over the previous 6 months, and 13.54 ($SD=7.95$) forms of psychological aggression. Of the MMEA subscales, Hostile Withdrawal was the most highly endorsed, with a mean

Table 1 Descriptive statistics for study variables

Variable	<i>M</i>	<i>SD</i>	Range
CTS physical assault	2.05	2.37	0–8
MMEA total	13.54	7.95	0–27
MMEA restrictive engulfment	3.32	2.57	0–7
MMEA denigration	2.92	2.41	0–7
MMEA hostile withdrawal	4.05	2.68	0–7
MMEA dominance/intimidation	3.24	2.40	0–7
DIS PTSD symptoms	7.14	5.18	0–17
Pediatric Symptom Checklist	15.06	11.76	1–53

CTS Conflict Tactics Scale, MMEA Multidimensional Measure of Emotional Abuse, DIS Diagnostic Interview Schedule.

variety score of 4.05 for this subscale. DIS PTSD descriptive statistics reflected high symptom levels, comparable to those reported in a larger sample that included the current participants (Taft et al. 2005). Mean PSC scores fell within the normal range reported in pediatric and school settings (Lloyd et al. 1995; Pagano et al. 1996; Pagano et al. 2000; Rauch et al. 1991), with similar rates of children falling in the clinical range with respect to behavior problems (7–13%).

Table 2 displays the bivariate associations among the study variables. As hypothesized, MMEA total scores were significantly associated with PSC scores such that higher psychological aggression was related to higher levels of child behavior problems, with this association falling in the medium to large range of magnitude. With the exception of Dominance/Intimidation, each MMEA subscale was significantly correlated with PSC scores in the expected direction, with associations falling in the medium to large range of magnitude. The relationship between Domination/Intimidation and the PSC was in the expected direction ($p=0.06$), with a small effect size obtained. Restrictive Engulfment and Hostile Withdrawal behaviors evidenced the largest associations with PSC scores, although these associations were not significantly higher than those found between either Denigration or Dominance/Intimidation and the outcome. Contrary to expectations, the CTS physical assault measure was not significantly associated with scores on the PSC. Further, when MMEA total scores and CTS physical assault scores were entered together as predictors of child behavior problems, the association between the psychological aggression measure and the outcome remained in the large range ($pr=0.54$) and statistically significant, $B(34)=0.63$, $p<0.001$. The association between physical assault and child behavior problems was in the opposite direction as expected, $B(34)=-0.37$, $p<0.01$, $pr=-0.31$.

Further analyses revealed some interesting differences in the relative predictive ability of the separate MMEA subscales with respect to child behavior problems. When the MMEA subscales were entered together into a multiple

regression, Restrictive Engulfment and Hostile Withdrawal remained significantly correlated with PSC scores (see Table 3), with small to medium effect sizes obtained. Denigration and Domination/Intimidation, on the other hand, were not significant predictors of scores on the PSC when considered with the other MMEA subscales.

Mediational analyses were conducted to determine if PTSD symptoms explained the significant associations found between maternal psychological aggression exposure and child behavior problems. Four separate analyses examined the MMEA total scores and the Restrictive Engulfment, Denigration, and Hostile Withdrawal subscales, as these measures met the initial criteria for mediation, namely a significant correlation with the mediator (DIS PTSD symptoms) and outcome variable (PSC scores). Also, as required to demonstrate a mediated association, the mediator variable (DIS PTSD symptoms) was significantly correlated with the outcome variable. When MMEA total scores and DIS PTSD symptoms were entered together as predictors of PSC scores in a regression equation, both the effects of MMEA total scores, $B(34)=0.26$, $pr=19$, ns , and PTSD symptoms, $B(34)=0.25$, $pr=0.20$, ns , were reduced to nonsignificance. A direct test of the significance of mediational path (Kenny et al. 1998) was marginally significant, $z=1.47$, $p=0.07$. When MMEA Restrictive Engulfment scores and DIS PTSD symptoms were entered together as predictors, PTSD symptoms remained a significant predictor, $B(34)=0.29$, $pr=0.25$, $p<0.05$, the effect of Restrictive Engulfment scores was reduced to nonsignificance, $B(34)=0.22$, $pr=0.16$, ns , and the test of mediation was significant, $z=1.90$, $p<0.05$. When MMEA Denigration scores and DIS PTSD symptoms were entered together as predictors, PTSD symptoms again remained a significant predictor, $B(34)=0.33$, $pr=0.29$, $p<0.05$, the effect of Denigration was reduced to nonsignificance, $B(34)=0.14$, $pr=0.09$, ns , and the test of mediation was significant, $z=1.81$, $p<0.01$. Both Hostile Withdrawal, $B(34)=0.30$, $pr=0.26$, $p<0.05$, and DIS PTSD symptoms, $B(34)=0.35$, $pr=0.30$,

Table 2 Intercorrelations among study variables

Variable	1	2	3	4	5	6	7	8
1. CTS physical assault	—							
2. MMEA total	0.50***	—						
3. MMEA restrictive engulfment	0.46***	0.71***	—					
4. MMEA denigration	0.22	0.77***	0.50***	—				
5. MMEA hostile withdrawal	0.15	0.74***	0.37**	0.55***	—			
6. MMEA dominance/intimidation	0.77***	0.81***	0.61***	0.53***	0.43***	—		
7. DIS PTSD	0.22	0.68***	0.63***	0.63***	0.32*	0.55***	—	
8. Pediatric Symptom Checklist	-0.05	0.45***	0.41***	0.36**	0.39**	0.24	0.45***	—

CTS Conflict Tactics Scale, MMEA Multidimensional Measure of Emotional Abuse, DIS Diagnostic Interview Schedule. CTS scores, MMEA scores, DIS scores, and Pediatric Symptom Checklist scores were log-transformed to normalize the distribution.

* $p<0.05$. ** $p<0.01$. *** $p<0.001$

Table 3 Multiple regression analyses-MMEA subscales

Variables	Pediatric Symptom Checklist			
	<i>Pr</i>	<i>B</i>	<i>t</i>	<i>p</i>
MMEA restrictive engulfment	0.26	0.36	3.16	0.00
MMEA denigration	0.10	0.14	1.04	0.31
MMEA hostile withdrawal	0.21	0.29	2.47	0.02
MMEA dominance/intimidation	−0.11	−0.17	−1.27	0.21

$R^2=0.25$, $F(4, 34)=4.21$,
 $p=0.01$
 MMEA Multidimensional Measure of Emotional Abuse.

$p<0.05$, were associated with PSC scores when entered together into a regression equation, though the association between Hostile Withdrawal and the outcome was reduced and the test of mediation was marginally significant, $z=1.43$, $p=0.08$. This pattern of findings provides support for the hypothesis that participant's PTSD symptoms mediate the association between abuse exposure and child behavior problems.

Discussion

PSC scores in this study of children residing with men in treatment for partner assault perpetration were comparable to PSC scores derived from pediatric primary care and inpatient settings (Jellinek et al. 1999; Lloyd et al. 1995) and urban elementary schools (Pagano et al. 2000). According to recommended cutoff scores (Jellinek et al. 1999), approximately 10% of the current sample fell within the clinical range of problem behaviors, suggesting behavioral functioning impairment meriting further psychological services. Although the rates of clinically significant child behavior problems were somewhat lower than those obtained in studies of children residing in shelters (Christopoulos et al. 1987; Grych et al. 2000; Ware et al. 2001), and among couples seeking marital therapy who report partner assault (Jouriles et al. 1989), most studies in this area have used other measures of child behavior problems, such as the Child Behavior Checklist (Achenbach 1991), thus making direct comparisons difficult.

Levels of intimate partner physical assault were not significantly related to child behavior problems. This finding was counter to expectations and not consistent with some prior studies of children exposed to partner violence (Fantuzzo et al. 1991; Jouriles et al. 1989 1996; McFarlane et al. 2003; Ware et al. 2001; Wolfe et al. 1985). However, several other investigations have similarly reported nonsignificant and modest associations between physical assault and child behavior problems (Hughes et al. 1989; Levendosky and Graham-Bermann 2000; Rosenbaum and O'Leary 1981). Further research examining the relationship between physical assault and child behavior is needed to clarify these conflicting findings, which may result from differences in direct witnessing of physical assault, or as a function of other

correlated risk factors such as parent-child aggression and family disruption.

In contrast to physical assault, psychological aggression was robustly associated with child behavior problems, and psychological aggression was also a stronger relative predictor of this outcome, consistent with recent studies examining the effects of both types of intimate partner aggression on children (Levendosky and Graham-Bermann 1998, 2000). These findings suggest that psychological aggression plays an important role in understanding children's behavior problems within families characterized by interparental physical assault, highlighting the need for greater attention to the unique associations that psychological aggression may have with child outcomes.

The examination of different forms of psychological aggression represented an attempt to conduct a more fine-grained analysis of the relationship between these types of behavior and child behavior problems. Restrictive engulfment, denigration, and hostile withdrawal behaviors by the abusive male partner were all associated with child behavior problems at the bivariate level. However, only restrictive engulfment and hostile withdrawal behaviors were significantly associated with child behavior problems when accounting for the other forms of psychological aggression. Restrictive engulfment behaviors represent attempts to deny the victim access to important social and physical resources, and/or to increase dependency on the abuser, which may negatively impact children living in that environment. Low levels of social support and lack of access to other resources have consistently been associated with problematic behaviors in children (DuBois et al. 2002; Dubow et al. 1991; Flisher et al. 2000). Hostile withdrawal behaviors are characterized by emotional unavailability and unwillingness to address the partner's concerns. It is possible that such actions are part of a cold and tense home environment lacking in nurturance and support. In addition, hostile withdrawal may limit the opportunities for children to witness conflict resolution, which has been shown to substantially reduce child distress in the face of inter-adult conflict (Cummings 1998).

Victim's PTSD symptoms were a strong predictor of child behavior problems. Further, consistent with the literature on depression and psychological functioning (English et al. 2003; Levendosky et al. 2003; Street et al. 2003), PTSD

symptoms appeared to mediate the influence of psychological aggression on child behavior problems. That is, associations between psychological aggression and child behavior problems were largely accounted for by the presence of women's PTSD symptoms. Further investigation into the nature of the relationship between PTSD symptoms and child behavior problems appears warranted, given current study findings and the high rates of PTSD found among samples of battered women (Golding 1999). Some previous studies among other trauma victims suggest that emotional numbing symptoms in particular may be associated with child behavior problems and other negative child outcomes (e.g., Ruscio et al. 2002).

There are a number of other potential contributing factors for the strong association found between psychological aggression and child behavior problems. Children may be more likely to witness psychological aggression, since this form of abuse is more prevalent and frequent than physical assault and is more likely to be displayed in front of the child. Witnessed aggression has the most deleterious impact on children (David et al. 1996), creating a higher likelihood for the modeling of aggressive behavior (Grych and Fincham 1990; Levendosky et al. 2002), and an atmosphere of threat and insecurity (Jouriles et al. 1996). Psychological aggression has also been found to detract from victims' parenting ability (Arias 1999) to a larger extent than physical abuse (Levendosky and Graham-Bermann 2000). Finally, psychological aggression is likely to lead to child behavior problems through several other unassessed maternal and parenting variables, such as maternal depression, low parenting self-efficacy, inconsistent parenting and inadequate parenting alliance, and parental substance abuse difficulties (Arias 1999).

Findings suggest that treatment programs for male abusers and battered women may represent important sources for identifying children at risk for behavior problems. These programs should incorporate victim education regarding the potential impacts of both physical and psychological aggression on victims and children, and foster the seeking of appropriate child services. Women and children may also benefit from interventions that incorporate parenting skills, a suggestion supported by recent intervention research on battered women leaving shelters (Jouriles et al. 2001).

Several limitations of the present study bear note. The degree to which participants interacted with their children was not assessed in this study. Low parent-child contact may have limited opportunities to observe child behavior in some cases. Further, parent-to-child aggression was not assessed. Both perpetrators and victims of relationship abuse are more likely to act aggressively toward their children than parents in nonviolent relationships (Mahoney et al. 2003; McCloskey et al. 1995), and parent-to-child

aggression has been associated with behavior problems among children who have also been exposed to interparental aggression (e.g., Hughes et al. 1989; Jouriles et al. 1987; Sternberg et al. 1993). Another limitation was our reliance on a single reporter of child behavior. Previous work has found a relationship between battered women's psychological distress and their reports of child behavior (Jaffe et al. 1985). However, one recent study did not find such an association (Ware et al. 2001), and another found that observer and victim reports of child behavior were significantly positively correlated (Levendosky and Graham-Bermann 2000). In this study, we used a PTSD measure reliant on DSM-III criteria. Future investigations should employ measures that utilize the most up-to-date diagnostic criteria. Our use of cross-sectional data was also suboptimal. Prospective studies are needed to more firmly establish the causal nature of associations, and to assess the developmental trajectories of behavior problems in children who live in homes where relationship abuse occurs. Although the use of a non-shelter sample of abused women was a strength of the current study, results may not generalize to either shelter samples or community samples of battered women.

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References

- Achenbach, T. (1991). *Manual for the CBCL/4–18 and 1991 profile*. Burlington, VT: University of Vermont.
- American Psychiatric Association. (1980). *Diagnostic and statistical manual of mental disorders* (3rd ed.). Washington, DC: American Psychiatric Association.
- Arias, I. (1999). Women's responses to physical and psychological abuse. In X. B. Arriaga, S. Oskamp (Eds.), *Violence in intimate relationships* (pp. 139–161). Thousand Oaks, CA: Sage.
- Arias, I., & Pape, K. T. (1999). Psychological abuse: Implications for adjustment and commitment to leave violent partners. *Violence and Victims*, 14, 55–67.
- Astin, M. C., Ogland-Hand, S., Coleman, E., & Foy, D. W. (1995). Posttraumatic stress disorder and childhood abuse in battered women: Comparisons with maritally distressed women. *Journal of Consulting and Clinical Psychology*, 63, 308–312.
- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51, 1173–1182.
- Breslau, N., & Davis, G. (1987). Posttraumatic stress disorder: The etiological specificity of war-time stressors. *American Journal of Psychiatry*, 144, 578–583.
- Campbell, J. C., & Lewandowski, L. A. (1997). Mental and physical health effects of intimate partner violence on women and children. *The Psychiatric Clinics of North America*, 20, 353–374.

- Caselli, L. T., & Motta, R. W. (1995). The effect of PTSD and combat level on Vietnam veterans' perceptions of child behavior and marital adjustment. *Journal of Clinical Psychology*, 51, 4–12.
- Christopoulos, C., Cohn, D. A., Shaw, D. S., Joyce, S., Sullivan-Hanson, J., Kraft, S. P., et al. (1987). Children of abused women: I. Adjustment at time of shelter residence. *Journal of Marriage and the Family*, 49, 611–619.
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Hillsdale, NJ: Erlbaum.
- Cummings, E. M. (1998). Children exposed to marital conflict and violence: Conceptual and theoretical directions. In G. W. Holden, R. A. Geffner, & E. N. Jouriles (Eds.), *Children exposed to marital violence: Theory, research, and applied issues* (pp. 55–93). Washington, DC: American Psychological Association.
- David, C., Steele, R., Forehand, R., & Armistead, L. (1996). The role of family conflict and marital conflict in adolescent functioning. *Journal of Family Violence*, 11, 81–91.
- DuBois, D. L., Burk-Braxton, C., Swenson, L. P., Tevendale, H. D., Lockerd, E. M., & Moran, B. L. (2002). Getting by with a little help from self and others: Self-esteem and social support as resources during early adolescence. *Developmental Psychology*, 38, 822–839.
- Dubow, E. F., Tisak, J., Causey, D., Hryshko, A., & Reid, G. (1991). A two-year longitudinal study of stressful life events, social support, and social problem solving skills: Contributions to children's behavioral and academic adjustment. *Child Development*, 62, 583–599.
- Dutton, M. A., Goodman, L. A., & Bennett, L. (1999). Court-involved battered women's responses to violence: The role of psychological, physical, and sexual abuse. *Violence and Victims*, 14, 89–104.
- English, D. J., Marshall, D. B., & Stewart, A. J. (2003). Effects of family violence on child behavior and health during early childhood. *Journal of Family Violence*, 18, 43–57.
- Fantuzzo, J. W., DePaola, L. M., Lambert, L., Martino, T., Anderson, G., & Sutton, S. (1991). Effects of interparental violence on the psychological adjustment and competencies of young children. *Journal of Consulting and Clinical Psychology*, 59, 258–265.
- Flisher, A. J., Kramer, R. A., Hoven, C. W., King, R. A., Bird, H. R., Davies, M., et al. (2000). Risk behavior in a community sample of children and adolescents. *Journal of the American Academy of Child and Adolescent Psychiatry*, 39, 881–887.
- Golding, J. M. (1999). Intimate partner violence as a risk factor for mental disorders: A meta-analysis. *Journal of Family Violence*, 14, 99–132.
- Grych, J. H., & Fincham, F. D. (1990). Marital conflict and children's adjustment: A cognitive-contextual framework. *Psychological Bulletin*, 108, 267–290.
- Grych, J. H., Jouriles, E. N., Swank, P. R., McDonald, R., & Norwood, W. D. (2000). Patterns of adjustment among children of battered women. *Journal of Consulting and Clinical Psychology*, 68, 84–94.
- Housekamp, B. M., & Foy, D. W. (1991). The assessment of posttraumatic stress disorder in battered women. *Journal of Interpersonal Violence*, 6, 367–375.
- Hughes, H. M., Parkinson, D., & Vargo, M. (1989). Witnessing spouse abuse and experiencing physical abuse: A “double whammy?” *Journal of Family Violence*, 4, 197–209.
- Jaffe, P., Wolfe, D., Wilson, S., & Zak, L. (1985). Critical issues in the assessment of children's adjustment to witnessing family violence. *Canada's Mental Health*, 33, 15–19.
- Jaffe, P., Wolfe, D., Wilson, S. K., & Zak, L. (1986). Family violence and child adjustment: A comparative analysis of girls' and boys' behavioral symptoms. *American Journal of Psychiatry*, 143, 74–77.
- Jellinek, M., Little, M., Murphy, J. M., & Pagano, M. (1995). The Pediatric Symptom Checklist: Support for a role in a managed care environment. *Archives of Pediatric and Adolescent Medicine*, 150, 768–769.
- Jellinek, M. S., & Murphy, J. M. (1988). Screening for psychosocial disorders in pediatric practice. *American Journal of Diseases of Children*, 142, 1153–1157.
- Jellinek, M. S., Murphy, J. M., Little, M., Pagano, M. E., Comer, D. M., & Kelleher, K. J. (1999). Use of the Pediatric Symptom Checklist to screen for psychosocial problems in pediatric primary care: A national feasibility study. *Archives of Pediatric and Adolescent Medicine*, 153, 254–260.
- Jordan, B. K., Marmar, C. R., Fairbank, J. A., Schlenger, W. E., Kulka, R. A., Hough, R. L., et al. (1992). Problems in families of male Vietnam veterans with posttraumatic stress disorder. *Journal of Consulting and Clinical Psychology*, 60, 916–926.
- Jouriles, E. N., Barling, J., & O'Leary, K. D. (1987). Predicting child behavior problems in maritally aggressive families. *Journal of Abnormal Child Psychology*, 15, 165–173.
- Jouriles, E. N., McDonald, R., Spiller, L., Norwood, W. D., Swank, P. R., Stephens, N., et al. (2001). Reducing conduct problems among children of battered women. *Journal of Consulting and Clinical Psychology*, 69, 774–785.
- Jouriles, E. N., Murphy, C. M., & O'Leary, K. D. (1989). Interspousal aggression, marital discord, and child problems. *Journal of Consulting and Clinical Psychology*, 57, 453–455.
- Jouriles, E. N., Norwood, W. D., McDonald, R., Vincent, J. P., & Mahoney, A. (1996). Physical violence and other forms of marital aggression: Links with children's behavior problems. *Journal of Family Psychology*, 10, 223–234.
- Kelley, M. L., & Fals-Stewart, W. (2002). Couples- versus individual-based therapy for alcohol and drug abuse: Effects on children's psychosocial functioning. *Journal of Consulting and Clinical Psychology*, 70, 417–427.
- Kenny, D. A., Kashy, D. A., & Bolger, N. (1998). Data analysis in social psychology. In D. T. Gilbert, S. T. Fiske, & G. Lindzey (Eds.), *Handbook of social psychology*, (4th ed., Vol. 1, pp. 233–265). Boston: McGraw-Hill.
- Kernic, M. A., Wolf, M. E., Holt, V. L., McKnight, B., Huebner, C. E., & Rivara, F. P. (2003). Behavioral problems among children whose mothers are abused by an intimate partner. *Child Abuse and Neglect*, 27, 1231–1246.
- Kitzmann, K. M., Gaylord, N. K., Holt, A. R., & Kenny, E. D. (2003). Child witnesses to domestic violence: A meta-analytic review. *Journal of Consulting and Clinical Psychology*, 71, 339–352.
- Lawrence, E., Heyman, R. E., & O'Leary, K. D. (1995). Correspondence between telephone and written assessments of physical violence in marriage. *Behavior Therapy*, 26, 671–680.
- Levendosky, A. A., & Graham-Bermann, S. A. (1998). The moderating effects of parenting stress on children's adjustment in woman-abusing families. *Journal of Interpersonal Violence*, 13, 383–397.
- Levendosky, A. A., & Graham-Bermann, S. A. (2000). Behavioral observations of parenting in battered women. *Journal of Family Psychology*, 14, 80–94.
- Levendosky, A. A., & Graham-Bermann, S. A. (2001). Parenting in battered women: The effects of domestic violence on women and their children. *Journal of Family Violence*, 16, 171–192.
- Levendosky, A. A., Huth-Bocks, A. C., Semel, M. A., & Shapiro, D. L. (2002). Trauma symptoms in preschool-age children exposed to domestic violence. *Journal of Interpersonal Violence*, 17, 150–164.
- Levendosky, A. A., Huth-Bocks, A. C., Shapiro, D. L., & Semel, M. A. (2003). The impact of domestic violence on the maternal-child relationship and preschool-age children's functioning. *Journal of Family Psychology*, 17, 275–287.
- Lloyd, J., Jellinek, M. S., Little, M., Murphy, M., & Pagano, M. (1995). Screening for psychosocial dysfunction in pediatric inpatients. *Clinical Pediatrics*, 34, 18–25.
- Magdol, L., Moffitt, T. E., Caspi, A., & Silva, P. A. (1998). Developmental antecedents of partner abuse: A prospective-longitudinal study. *Journal of Abnormal Psychology*, 107, 375–389.

- Mahoney, A., Donnelly, W. O., Boxer, P., & Lewis, T. (2003). Marital and severe parent-to-adolescent physical aggression in clinic-referred families: Mother and adolescent reports on co-occurrence and links to child behavior problems. *Journal of Family Psychology*, 17, 3–19.
- Marshall, L. L. (1996). Psychological abuse of women: Six distinct clusters. *Journal of Family Violence*, 11, 379–409.
- Mason, W. A., Kosterman, R., Hawkins, J. D., Herrenkohl, T. I., Lengua, L. J., & McCauley, E. (2004). Predicting depression, social phobia, and violence in early adulthood from child behavior problems. *Journal of the American Academy of Child Psychiatry*, 43, 307–315.
- McCloskey, L. A., Figueredo, A. J., & Koss, M. P. (1995). The effects of systemic family violence on children's mental health. *Child Development*, 66, 1239–1261.
- McFarlane, J. M., Groff, J. Y., O'Brien, J. A., & Watson, K. (2003). Behaviors of children who are exposed and not exposed to intimate partner violence: An analysis of 330 Black, White, and Hispanic children. *Pediatrics*, 112, 202–207.
- Moffitt, T. E., Caspi, A., Krueger, R. F., Magdol, K., Margolin, G., Silva, P. A., et al. (1997). Do partners agree about abuse in their relationship? A psychometric evaluation of interpartner aggression. *Psychological Assessment*, 9, 47–56.
- Murphy, C. M., & Hoover, S. A. (1999). Measuring emotional abuse in dating relationships as a multifactorial construct. *Violence and Victims*, 14, 39–53.
- Murphy, C. M., Hoover, S. A., & Taft, C. T. (1999, November). *The multidimensional measure of emotional abuse: Factor structure and subscale validity*. Paper presented at the Association for the Advancement of Behavior Therapy Annual Meeting, Toronto, Canada.
- Murphy, J. M., Jellinek, M., & Milinsky, S. (1989). The Pediatric Symptom Checklist: Validation in the real world of middle school. *Journal of Pediatric Psychology*, 14, 629–639.
- Pagano, M. E., Cassidy, L. J., Little, M., Murphy, J. M., & Jellinek, M. S. (2000). Identifying psychosocial dysfunction in school-age children: The Pediatric Symptom Checklist as a self-report measure. *Psychology in the Schools*, 37, 91–106.
- Pagano, M., Murphy, J. M., Pedersen, M., Mosbacher, D., Crist-Whitzel, D., Jordan, P., et al. (1996). Screening for psychosocial problems in 4–5 year olds during routine EPSDT examinations: Validity and reliability in a Mexican-American sample. *Clinical Pediatrics*, 35, 139–147.
- Rauch, P. K., Jellinek, M. S., Murphy, J. M., Schachner, L., Hansen, R., Esterly, N. B., et al. (1991). Screening for psychosocial dysfunction in pediatric dermatology practice. *Clinical Pediatrics*, 30, 493–497.
- Robins, L. N., Helzer, J. E., Ratcliff, K. S., & Seyfried, W. (1982). Validity of the Diagnostic Interview Schedule, Version II: DSM-III diagnoses. *Psychological Medicine*, 12, 855–870.
- Rosenbaum, A., & O'Leary, K. D. (1981). Children: The unintended victims of marital violence. *American Journal of Orthopsychiatry*, 51, 692–699.
- Ruscio, A. M., Weathers, F. W., King, L. A., & King, D. W. (2002). Predicting male war-zone veterans' relationships with their children: The unique contribution of emotional numbing. *Journal of Traumatic Stress*, 15(5), 351–357.
- Sackett, L. A., & Saunders, D. G. (1999). The impact of different forms of psychological abuse on battered women. *Violence and Victims*, 9, 31–44.
- Saunders, D. G. (1994). Posttraumatic stress symptom profiles of battered women: A comparison of survivors in two settings. *Violence and Victims*, 14, 105–117.
- Schlee, K. A., Heyman, R. E., & O'Leary, K. D. (1998). Group treatment for spouse abuse: Are women with PTSD appropriate participants? *Journal of Family Violence*, 13, 1–20.
- Simonian, S. J., & Tarnowski, K. J. (2001). Utility of the Pediatric Symptom Checklist for behavioral screening of disadvantaged children. *Child Psychiatry and Human Development*, 31, 269–278.
- StataCorp. (2001). *STATA Statistical Software: Release 7.0*. College Station, TX: Stata Corporation.
- Steiger, J. H. (1980). Tests for comparing elements of a correlation matrix. *Psychological Bulletin*, 87, 245–251.
- Sternberg, K. J., Lamb, M. E., Greenbaum, C., Cicchetti, D., Dawud, S., Cortes, R. M., et al. (1993). Effects of domestic violence on children's behavior problems and depression. *Developmental Psychology*, 29, 44–52.
- Straus, M. (1979). Measuring intrafamily conflict and violence: The Conflict Tactics (CT) scales. *Journal of Marriage and the Family*, 41, 75–88.
- Straus, M. A. (1990). Measuring intrafamily conflict and violence: The conflict tactics scales. In M. A. Straus, & R. J. Gelles (Eds.), *Physical violence in American families* (pp. 29–48). New Brunswick, NJ: The Transaction Publishers.
- Straus, M. A. (1992). Children as witnesses to marital violence: A risk of lifelong problems among a nationally representative sample of American men and women. In D. F. Schwarz (Ed.), *Children and violence: Report of the twenty-third Ross Roundtable on critical approaches to common pediatric problems* (pp. 98–109). Columbus, Ohio: Ross Lab.
- Street, A. E., & Arias, I. (2001). Psychological abuse and posttraumatic stress disorder in battered women: Examining the roles of shame and guilt. *Violence and Victims*, 16, 65–78.
- Street, A. E., King, L. A., King, D. W., & Riggs, D. S. (2003). The associations among male-perpetrated partner violence, wives' psychological distress, and child behavior problems: A structural equation modeling analysis. *Journal of Comparative Family Studies*, 34, 23–40.
- Taft, C. T., Murphy, C. M., King, L. A., DeDeyn, J. M., & Musser, P. H. (2005). Posttraumatic stress disorder symptomatology among partners of men in treatment for relationship abuse. *Journal of Abnormal Psychology*, 114, 259–268.
- Taft, C. T., Murphy, C. M., King, D. W., Musser, P. H., & DeDeyn, J. M. (2003). Process and treatment adherence factors in group cognitive-behavioral therapy for partner violent men. *Journal of Consulting and Clinical Psychology*, 71, 812–820.
- Vitanza, S., Vogel, L. C. M., & Marshall, L. (1995). Distress and symptoms of posttraumatic stress disorder in abused women. *Violence and Victims*, 10, 23–34.
- Ware, H. S., Jouriles, E. N., Spiller, L. C., McDonald, R., Swank, P. R., & Norwood, W. D. (2001). Conduct problems among children and battered women's shelters: Prevalence and stability of maternal reports. *Journal of Family Violence*, 16, 291–307.
- Watson, C. G., Juba, M. P., Manifold, V., Kucala, T., & Anderson, P. E. D. (1991). The PTSD interview: Rationale, description, reliability, and concurrent validity of a DSM-III based technique. *Journal of Clinical Psychology*, 47, 179–188.
- Wolfe, D. A., Jaffe, P., Wilson, S. K., & Zak, L. (1985). Children of battered women: The relation of child behavior to family violence and maternal stress. *Journal of Consulting and Clinical Psychology*, 53, 657–665.
- Wolfe, D. A., Zak, L., Wilson, S., & Jaffe, P. (1986). Child witnesses to violence between parents: Critical issues in behavioral and social adjustment. *Journal of Abnormal Child Psychology*, 14, 95–104.